SYSTEMS, METHODS AND APPARATUS FOR VEHICLES BATTERY CHARGING

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] The present application is a Continuation Application of U.S. patent application Ser. No. 15/137,454, filed Apr. 25, 2016 and entitled Systems, Methods and Apparatus for Vehicle Battery Charging, now U.S. Pat. No. 10,556,513, issued Feb. 11, 2020 (Attorney Docket No. R91), which is a Continuation Application of U.S. patent application Ser. No. 14/511,460, filed Oct. 10, 2014 and entitled Systems, Methods and Apparatus for Vehicle Battery Charging, now U.S. Pat. No. 9,321,361, issued Apr. 26, 2016 (Attorney Docket No. P08), which is a Continuation Application of U.S. patent application Ser. No. 12/847,354, filed Jul. 30, 2010 and entitled Systems, Methods and Apparatus for Vehicle Battery Charging, now U.S. Pat. No. 8,860,362, issued Oct. 14, 2014 (Attorney Docket No. I14) which is a Non-Provisional Application which claims the benefit of U.S. Provisional Patent Application Ser. No. 61/230,210, filed Jul. 31, 2009 and entitled Method, System and Apparatus for Vehicle Battery Charging (Attorney Docket No. F69), both of which are hereby incorporated herein by reference in their entireties.

TECHNICAL FIELD

[0002] The present disclosure relates to one or more vehicle battery and more particularly, to systems, methods, and apparatus for vehicle battery charging.

BACKGROUND INFORMATION

[0003] Various devices and/or vehicles are powered by at least one battery. In some cases, the at least one battery is a battery capable of being recharged, sometimes referred to as a rechargeable battery. There are various methods and devices that may be used to recharge a battery. However, many of these methods and devices require access to a particular connector which, in many cases, is electrically connected to a grid or power source. Further, many of these devices require a specific connector which may not be universal. With respect to at least partially electric vehicles, recharging may be difficult for the at least one battery may require a recharge in a location where a recharging device is not available.

[0004] Accordingly, there is a need for a system, method and apparatus for recharging and/ or providing charge to at least one battery on an at least partially electric vehicle, which is available at the location in which the charge is desired.

SUMMARY

[0005] In accordance with one aspect of the present invention, a system for charging a battery within an at least partially electric vehicle is disclosed. The system includes a charging device wherein the charging device configured to electrically connect to the at least partially electric vehicle and charge at least one battery by a predetermined amount. The system also includes a network configured to determine the location of the charging device.

[0006] Some embodiments of this aspect of the present invention include one or more of the following: wherein the network is configured for communication between the electric vehicle and the network and the network and the charging device; wherein the network configured to send and receive communication from a central database; wherein the electric vehicle requests a charge from the charging device through communication with the network; wherein the charging device is a mobile charging device; wherein the charging device comprising at least one battery; wherein the electric potential of the energy in the charging device is greater than the electric potential of the battery in the electric vehicle; wherein the at least one battery in the charging device is charged by a generator; wherein the generator is a Stirling generator; and/or wherein the charging device is a vehicle.

[0007] In accordance with one aspect of the present invention, a battery charge system for an electric vehicle, the electric vehicle comprising at least one electric vehicle battery, is disclosed. The system includes a charging device comprising at least one charging device battery configured to charge at least one electric vehicle battery of the at least partially electric vehicle, a network in communication with the charging device, and a communication device communicatively coupled to the charging device and configured to receive charging requests from the network.

[0008] Some embodiments of this aspect of the present invention include one or more of the following: wherein the charging device is a charging vehicle; wherein the charging vehicle is a mobile charging vehicle; wherein the at least one battery is a low impedance battery having a higher potential than a battery in the electric vehicle; and/or wherein the electric vehicle comprising a communication device communicatively coupled to the network.

[0009] In accordance with one aspect of the present invention, a system for charging a vehicle is disclosed. The system includes a charging device. The charging device electrically connects to an at least partially electric vehicle and recharges a battery by a predetermined amount. The system also includes a system for locating the charging device.

[0010] Some embodiments of this aspect of the present invention include one or more of the following: where the charging device is connected to a vehicle; where the charging device is stationary; where the charging device is charged by a generator; where the charging device is charged by a Stirling generator.

[0011] These aspects of the invention are not meant to be exclusive and other features, aspects, and advantages of the present invention will be readily apparent to those of ordinary skill in the art when read in conjunction with the appended claims and accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] These and other features and advantages of the present invention will be better understood by reading the following detailed description, taken together with the drawings wherein:

[0013] FIG. **1** is an illustration of a system for charging electric vehicles consistent with some embodiments of the present disclosure;

[0014] FIG. **2** is an illustration of one embodiment of a system for charging electric vehicles having a central database;

[0015] FIG. **3** is an illustration of a system for accessing to electrical energy consistent with some embodiments of the present disclosure;